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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/736,094	12/15/2003	William E. Woollenweber	2943/012	3290

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EXAMINER

TRIEU, THAI BA

ART UNIT	PAPER NUMBER
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3748

DATE MAILED: 03/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/736,094

Applicant(s)

WOOLLENWEBER ET AL.

Examiner

Thai-Ba Trieu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15-24 is/are allowed.
- 6) ☒ Claim(s) 1,3,6,7,10,11,13 and 14 is/are rejected.
- 7) ☒ Claim(s) 2,4,5,8,9 and 12 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 June 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 04/12/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Specification

Since the abstract is too long, applicant is required to submit a substitute abstract to meet the requirement set forth below:

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet **within the range of 50 to 150 words**. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Claim Objections

Claims 10, and 19-24 are objected to because of the following informalities:

- In claim 10, line 2, "**the**" before "**compressor casing**" should be replaced by – **a** – (for correcting of lack antecedent basis in claims).
- In Claims 19-24, line 1, "**A bearing system**" should be replaced by – **The bearing system --**.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 6, and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gutknecht (Patent Number 4,979,881), in view of Fischer (Patent Number 6,425,743 B1) and Sabini (Patent Number 6,048,168).

Gutknecht discloses a turbocharger for an internal combustion engine, comprising:

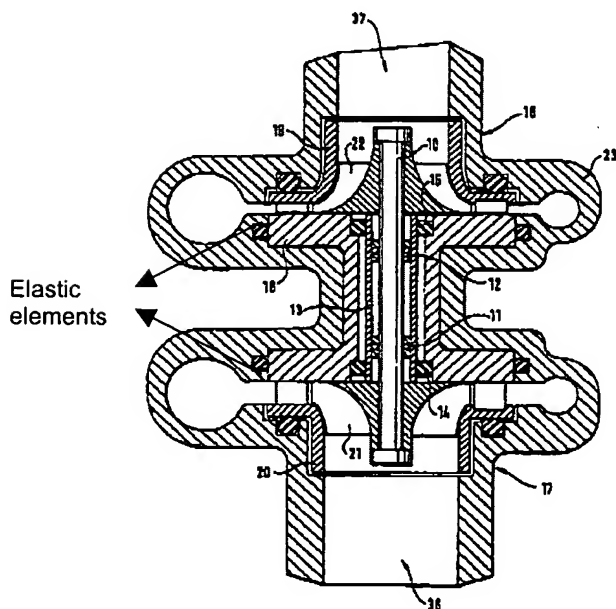
a rotating assembly comprising a turbine wheel (30) and a compressor wheel (22) carried at the opposite ends of a shaft (24) (See Figure); and

a stationary housing (12, 14, 16) comprising an exhaust gas volute (28) for directing engine exhaust gas through said turbine wheel (30) to rotate the rotating assembly, a compressor casing (14) for collection of compressed air from the compressor wheel (22) and a bearing housing (12) (See Figure, and Column 1, lines 44-54); a bearing system for rotatably carrying said rotating assembly within the stationary housing (38, 40), said bearing system comprising an elongated bearing carrier (38), and a pair of ball bearings (40), one ball bearing (40) being axially spaced and carried by the elongated bearing carder adjacent each of its ends, said pair of ball bearings being engaged with said shaft

(24) and rotatably carrying said rotating assembly within said stationary housing
(See Figure, Column 1, lines 65-68, and Column 2, lines 1-9);

wherein the bearing housing (12) contains an annular coolant water passage (via 72, 74, 56, 73, 75) that communicates with the outside surface of the elongated bearing carrier and has an inlet (72, 74) and outlet (73, 75) for admitting and expelling engine coolant (See Figure, Abstract, Column 2, lines 27-68, and Column 3, lines 1-12).

However, Gutknecht fails to disclose an elongated bearing carrier being removably supported by a plurality of elastic elements between the elongated bearing carrier and said bearing housing, wherein said removable elongated bearing carrier has cylindrical outside surface with a peripheral O-ring groove form on each side of said one surface, and said elastomeric bands are O-rings seated in said peripheral grooves; and the bearings being anti-friction ball bearings.



Fischer teaches that it is conventional in the turbocharged internal combustion engine art, to utilize an elongated bearing carrier being removably supported by a plurality of elastic elements (Not Numbered) between the elongated bearing carrier and said bearing housing wherein said removable elongated bearing carrier has cylindrical

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outside surface with a peripheral O-ring groove (Not Numbered) form on each side of said one surface, and said elastomeric bands are O-rings seated in said peripheral grooves (See Attached Figure).

Additionally, Sabini teaches that it is conventional in the bearing art, to utilize the anti-friction ball bearings comprising ceramic balls (20, 22) (See Figure 1, Abstract, and Column 2, lines 62-68, and Column 3, lines 1-8).

It would has been obvious to one having ordinary skill in the art at that time the invention was made, to have utilized elongated bearing carrier being removably supported by a plurality of elastic elements between the elongated bearing carrier and said bearing housing, as taught by Fischer; as well as, the anti-friction ball bearings comprising ceramic balls, as taught by Sabini, to improve the efficiency of the Gutknecht device, since the use thereof would have increased the durability and reduced the manufacturing cost of the device.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gutknecht (Patent Number 4,979,881), in view of Fischer (Patent Number 6,425,743 B1) and Sabini (Patent Number 6,048,168), and further in view of Miyake (Patent Number 5,522,667).

The modified Gutknecht device discloses the invention as recited above, however, fails to disclose the angular contact ball bearings carrying a full complement of ceramic balls.

Miyake teaches that it is conventional in the ball bearings art for turbocharger, to utilize the anti-friction ball bearings comprising angular contact ball bearings carrying a full complement of ceramic balls (See Figures 1-2C, Column 1, lines 30-50 and 65-67, Column 2, lines 1-13, and Column 5, lines 32-45).

It would have been obvious to one having ordinary skill in the art at that time the invention was made, to have utilized the angular contact ball bearings carrying a full complement of ceramic balls, as taught by Miyake, to prevent the seizure of the ball bearings and to reduce the vibration of the modified Gutknecht device.

Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gutknecht (Patent Number 4,979,881), in view of Fischer (Patent Number 6,425,743 B1) and Sabini (Patent Number 6,048,168), and further in view of Mallof (Patent Number 6,305,169 B1).

The modified Gutknecht device discloses the invention as recited above, however, fails to disclose the structural details of an electric motor generator.

Mallof teaches that it is conventional in the motor assisted turbocharger art, to utilize an electric motor generator having a motor housing connected to and carried by the compressor casing and a motor generator rotor connected to the turbocharger shaft; wherein the motor housing forms an inlet to the compressor wheel of the turbocharger with surfaces in heat transfer relationship with the motor components and electric control (See Figure 1, Column 5, line 8-11, Column 8, lines 23-53, Column 11, lines 27-48).

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It would have been obvious to one having ordinary skill in the art at that time the invention was made, to have utilized the structural details of an electric motor generator, as taught by Mallof, to improve the efficiency of the modified Gutknecht device.

Allowable Subject Matter

Claims 14-24 are allowed.

Claims 2, 4-5, 8, 9 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance: The prior art does not disclose or render obvious the claimed combination of the improvement an elongated cylindrical bearing carrier in a bearing system for a rotating assembly carried by a housing of a turbocharger for an internal combustion engine including:

Regarding claim 15:

with one of the pair of angular contact anti-friction bearings being carried adjacent each end of the elongated cylindrical bearing carrier and carrying thrust in one direction, the direction of the thrust being carried by each angular contact ball bearing being the opposite of the direction of the thrust being carried by the other angular contact ball bearing.

Regarding claim 18:

a first anti-friction ball bearing in the central bore at one end of the elongated cylinder; a second anti-friction ball bearing in the central bore at the opposite end of the elongated cylinder."

Conclusion

The IDS (PTO-1449) filed on April 12, 2004 has been considered. An initialized copy is attached hereto.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Barbic et al. (US Patent Number 4,867,655) disclose variable stiffness oil film damper.

- Woollenweber et al. (US Patent Number 6,032,466) discloses a motor assisted turbocharger for internal combustion engines.

- Hall et al. (US Patent Number 6,735,945 B1) disclose an electric turbo-charging system.

- Knepper et al. (US Patent Number 6,443,624 B1) disclose a high-speed angular contact ball bearing.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thai-Ba Trieu whose telephone number is (571) 272-4867. The examiner can normally be reached on Monday - Thursday (6:30-5:00).


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion can be reached on (571) 272-4859. The fax phone

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number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TTB
March 25, 2005


Thai-Ba Trieu
Primary Examiner
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